

## PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FP21241	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/AU2005/000534	International filing date ( <i>day/month/year</i> ) 15 April 2005	Priority date ( <i>day/month/year</i> ) 16 April 2004
International Patent Classification (IPC) or national classification and IPC  Int. Cl.  <i>H04R 5/00</i> (2006.01) <i>G06T 15/00</i> (2006.01) <i>G06T 17/00</i> (2006.01)		
Applicant SMART INTERNET TECHNOLOGY CRC PTY LTD et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☐ (*sent to the applicant and to the International Bureau*) a total of      sheets, as follows:
    - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☐ (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s))      , containing a sequence listing and/or table related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
 

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input checked="" type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

Date of submission of the demand 5 December 2005	Date of completion of this report 05 April 2006
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer  Mani Ramachandran Telephone No. (02) 6283 2233

**Box No. I**      **Basis of the report**

1. With regard to the language, this report is based on:

- ☒ The international application in the language in which it was filed
- ☐ A translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3(a) and 23.1 (b))
  - ☐ publication of the international application (under Rule 12.4(a))
  - ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☒ the international application as originally filed/furnished
- ☐ the description:
- |        |                                                              |
|--------|--------------------------------------------------------------|
| pages  | as originally filed/furnished                                |
| pages* | received by this Authority on _____ with the letter of _____ |
| pages* | received by this Authority on _____ with the letter of _____ |
- ☐ the claims:
- |        |                                                              |
|--------|--------------------------------------------------------------|
| pages  | as originally filed/furnished                                |
| pages* | as amended (together with any statement) under Article 19    |
| pages* | received by this Authority on _____ with the letter of _____ |
| pages* | received by this Authority on _____ with the letter of _____ |
- ☐ the drawings:
- |        |                                                              |
|--------|--------------------------------------------------------------|
| pages  | as originally filed/furnished                                |
| pages* | received by this Authority on _____ with the letter of _____ |
| pages* | received by this Authority on _____ with the letter of _____ |
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to the sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to the sequence listing (*specify*):

\* If item 4 applies, some or all of those sheets may be marked "superseded."

**Box No. IV Lack of unity of invention**

1. ☐ In response to the invitation to restrict or pay additional fees the applicant has, within the applicable time limit:
- ☐ restricted the claims
  - ☐ paid additional fees
  - ☐ paid additional fees under protest and, where applicable, the protest fee
  - ☐ paid additional fees under protest but the applicable protest fee was not paid
  - ☐ neither restricted the claims nor paid additional fees
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
- ☐ complied with.
  - ☒ not complied with for the following reasons:  
The international application lacks unity of invention as it includes the following inventions -  
  
Claims 1, 8, 19, 20, 27 and 38 are directed to an apparatus/method of creating an audio scene in a virtual environment for an avatar, wherein the aim is to create a weighted audio stream, and the weighted audio stream is associated with a datum representing a relative location with respect to the avatar.  
  
Claims 5 and 24 are directed to an apparatus/method of creating an audio scene in a virtual environment for an avatar, wherein the aim is to create an unweighted audio stream, and the unweighted audio stream is associated with a datum representing a relative location with respect to the avatar.  
  
Claims 14 and 33 deal with an apparatus/method of creating information for use in creating an audio scene based on an identifier of an object and location information.  
  
This authority did not invite the applicant to restrict or pay additional fees as the additional inventions could be searched with little additional search and examination effort.
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
  - ☐ the parts relating to claims Nos.

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims 1-40	YES
	Claims	NO
Inventive step (IS)	Claims 1-40	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-40	YES
	Claims	NO

## 2. Citations and explanations (Rule 70.7)

NOVELTY & INVENTIVE STEP Claims 1-40:

D1 – JP 2000-013900 A (MATSUSHITA ELECTRIC IND CO LTD) 14 January 2000

D2 – JP 11-232488 A (MITSUBISHI ELECTRIC CORP) 27 August 1999

The invention of claims 1, 8, 19, 20, 27 and 38 is directed to an apparatus/method of creating an audio scene in a virtual environment for an avatar, wherein the aim is to create a weighted audio stream, and the weighted audio stream is associated with a datum representing a relative location with respect to the avatar.

The invention of claims 5 and 24 is identical to the above, except it uses an unweighted audio stream.

The invention of claims 14 and 33 deal with an apparatus/method of creating information for use in creating an audio scene based on an identifier of an object and location information.

D1 is the closest prior art and talks about a sound reproducing device that applies a 3D sound effect processing to pluralities of sound sources by utilising 3D information based on the relative position or location of the sound source. A sound source management unit has preset group division information based on human beings' hearing characteristics. When the relationship of distance between hearer and sound source is below a predetermined level, weighting is performed. Mean angle difference of the audio data is obtained when dividing and adding the audio data, during the weighting process. Using the obtained angle difference, a 3D sound effect is reproduced in virtual space.

In D2 a sound source positional information, an audio data and character information are stored as an attribute of background sound to virtual space. A sound reproducing unit reproduces the background sound based on sound source positional information and audio data.

However these citations are silent as to the use of a single datum representing a location of the portion of the hearing range in the virtual environment. The closest art of D1 describes the use of multiple datums each of which represents the location of a specific object in the portions of the hearing range and which do not represent the location of a group of objects.

The inventions defined in the claims are therefore novel, inventive and industrially applicable.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2005/000534

## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. <sup>7</sup>: H04R 5/00, G06T 15/00, 17/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Derwent WPAT, Espacenet: virtual environment, avatar, audio, sound, reality, 3D, dimension, role play and similar terms

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Patent Abstracts of Japan, JP 2000-013900 A (MATSUSHITA ELECTRIC IND CO LTD) 14 January 2000 abstract	1-40
Y	Patent Abstracts of Japan, JP 11-232488 A (MITSUBISHI ELECTRIC CORP) 27 August 1999 abstract	1-40
A	WO 2001/085293 A1 (SIMATION, INC) 15 November 2001	



Further documents are listed in the continuation of Box C



See patent family annex

### \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search  
17 June 2005

Date of mailing of the international search report  
23 JUN 2005

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2005/000534

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member
JP	2000-013900	NONE
JP	11-232488	NONE
WO	2001/085293	AU 50002/00
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.		
END OF ANNEX		